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WOODS HOLE OCEANOGRAPHIC INSTITUTION

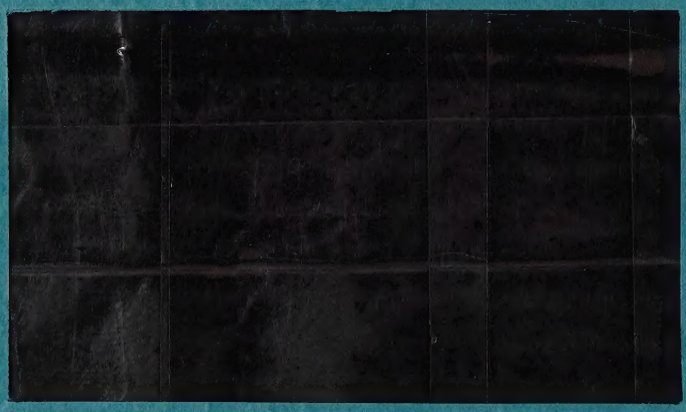
Reference No. 51-63

OCEANIC BIOLOGY
(Oceanographic Research)

conducted during the period

April 1, 1951 - June 30, 1951

WOODS HOLE, MASSACHUSETTS



WOODS HOLE OCEANOGRAPHIC INSTITUTION

Woods Hole, Massachusetts

Reference No. 51-63

OCEANIC BIOLOGY
(Oceanographic Research)

conducted during the period

April 1, 1951 - June 30, 1951

C. J. Fish, SUPERVISOR

Periodic Status Report
Submitted to Office of Naval Research
Under Contract N6ori-19501 (NR-083-003)

July 1951

APPROVED FOR DISTRIBUTION _____
Director

The Contractor shall furnish the necessary personnel and facilities for and, in accordance with any instructions issued by the Scientific Officer or his authorized representative, shall assemble and analyze all available data on the following subjects:

(a) character and distribution of zooplankton as related to features in physical and chemical oceanography and to the material resources of the sea;

(b) distribution and growth rates of reef-building corals;

(c) causes and seasonal variation of phosphorescent waters;

(d) regional distribution and biology of fouling organisms;

(e) character and prevalence of sound producing marine animals; and

(f) cooperative zooplankton collection program with the Department of the Treasury, United States Coast Guard.

This report contains a summary of work carried out under Contract N6ori-19501 (NR-083-003) during January, February, and March 1951 under the following headings:

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ABSTRACT

Analyses of recordings of eleven species of marine fishes from New England waters have been completed with an Harmonic Wave Analyzer, and analyses of recordings of five additional species are in progress. Summer field work was resumed on June 16, 1951 with a study of the sounds produced by toad fish during the mating season. This has now been definitely established to be a prespawning period phenomenon. The weekly plankton collections and observations by Weather Station vessels at Stations "B" and "E" now total 120 obtained on 46 cruises. The Bibliographic Card Index of Oceanography now totals approximately 3,200 titles.

SONIC FISH PROGRAM

Because this project has been unable to secure another Harmonic Wave Analyzer, it has been necessary to use the facilities of Brown University, unfortunately available only for limited periods during the spring months. However, analyses of recordings have been completed for the following species: scup (Stenotomus chrysops), squeteague (Cynoscion regalis), kingfish (Menticirrhus saxatilis), silver hake (Merluccius bilinearis), hardtail (Caranx crysos), toadfish (Opsanus tau), common and red-winged searobins (Prionotus carolinus and P. evolans), puffer (Spheroides maculatus), burrfish (Chilomycterus schoepfii), and the longhorn sculpin (Myoxocephalus octodecimspinosus). Species for which analyses are still in progress are: black sea bass (Centropristes striatus), striped bass (Roccus lineatus), rudderfish (Seriola zonata), eel (Anguilla rostrata), and tautog (Tautoga onitis). In certain experiments, e.g., with the triggerfish (Balistes carolinensis), the source of observed sound was not definitely ascertained and study of further specimens is indicated.

The summer field work was resumed on June 16, 1951 under the supervision of Marie P. Fish, assisted by William H. Mowbray, Joseph B. Munro, and Marilyn P. Fish. A continuation of the previous program involves subjecting all obtainable species to a routine experimental procedure to identify the potential makers of underwater sound and to determine the underlying causes for sonic activity when it does occur. Members of the staff select specimens when local fishtraps are hauled, and each new form is run through a series of situations under controlled stimulation. Between June 16 and July 1, twenty species were obtained for experiment.

More intensive listening in the fish's normal habitat is planned for the current season, and previous field gear has been considerably improved by the addition of a tape recorder. To date this has been successfully utilized in checking toadfish activity over the breeding grounds. That the "foghorn blast" is limited to the prespawning period, as indicated in 1950, was corroborated by the records of 1951.

WEATHERSHIP PLANKTON PROGRAM

Three weekly plankton collections and oceanographic records were made at Station "B" by each of the following vessels during the quarter ending June 30, 1951:

USCGC CASTLE ROCK	Mar. 31 - Apr. 21
USCGC SPENCER	Apr. 21 - May 12
USCGC BIBB	May 12 - June 2
USCGC CASCO	June 2 - June 23

Comparable collections and records were obtained at Station "E" by the following vessels:

USCGC DEXTER	Mar. 21 - Apr. 11
USCGC MENDOTA	Apr. 11 - May 2
USCGC ROCKAWAY	May 2 - May 23
USCGC MACKINAC	May 23 - June 13

To date a total of 120 weekly plankton stations have been occupied on 46 cruises. One weekly station was omitted at Station "B" during the past quarter due to adverse weather conditions. Four CB #12 net hauls and one half-meter net haul were also missed.

Analyses of the first year's zooplankton samples and oceanographic data from Station "B" (February 28, 1950 to March 6, 1951) have been completed by William V. Kielhorn. The results are being prepared for submission as a technical report.

Damage to nets and apparatus continues to be excessive in spite of all efforts to prevent it. It is now evident that such losses must be expected so long as the rapid turn-over of Coast Guard personnel precludes the possibility of indoctrinating operations officers prior to assignment to Stations "B" and "E".

BIBLIOGRAPHIC CARD INDEX

During the past quarter approximately 4,400 titles have been indexed by Mary Curtis Cobb for the Bibliographic card file of oceanography. These include 4,000 Atlantic, 200 Pacific, and 200 Arctic references. The Bibliographic Index now contains more than 32,000 reference titles.

PERSONNEL

Charles J. Fish,	Senior Biologist, in charge (quarter time)	16.25
Marie P. Fish,	Associate Biologist	65.00
Mary C. Cobb,	Secretary-Technician	65.00

Robert Campbell,	Biological Aid	65.00
	Temporary assistants	30.00
	Graduate student assistants (5)	307.00
	Total Man Days*	648.25

* Man Days consists of 8 working hours.

Note: This research work is continuing under Contract Nonr-39002, Project (NR-083-054) with the University of Rhode Island.

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